

REMARKS

The above Amendments and these Remarks are in reply to the Office action mailed March 25, 2008. Claims 1-18 and 23-29 are pending. Applicants have amended claims 1-3, 8-15, 23 and 27-29. Applicants respectfully request reconsideration of claims 1-18 and 23-29.

Summary of the Examiner's Objections

Claims 1-18 and 23-29 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter Applicant regards as the invention.

Claims 1-18 and 23-29 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S patent no. 6,204,856 (*Wood*).

Rejection Under § 112, ¶ 2

Claims 1-18 and 23-29 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter Applicant regards as the invention. In particular, Examiner states that the term "randomly" is not disclosed in Applicant's originally filed disclosure.

Applicants respectfully disagree with Examiner that "randomly" as used in the context of the claimed subject matter is indefinite. Applicants further disagree with Examiner that the portion of *Wood* cited to support a rejection of the "randomly" element ("determining parameter values at positions within the triangle" *Wood*, col. 2, lines 12-14) discloses anything related to "randomly" selecting a point. Notwithstanding, the Applicants have removed the term "randomly" from claims 1, 8-9, 13-15, 23 and 27 in which the term appeared in order to expedite prosecution of the

present application. Applicants reserve the right to re-introduce the term “randomly” in the present or related applications in the future.

Because the term “randomly” no longer appears in any pending claim, Applicants submit that this rejection is now moot and requests the rejection be withdrawn.

Rejection Under § 102(b) Over Wood

Claims 1-18 and 23-29 were rejected under 35 U.S.C. §102(e) as being anticipated by *Wood*. Because *Wood* fails to disclose each limitation of claims 1-18 and 23-29, Applicants assert that these claims are patentable over the cited art.

Claims 16-18 not addressed by Examiner

In the Office Action mailed on March 25, 2008 (*Office Action*), the Examiner indicates that claims 1-18 are rejected under 35 U.S.C. § 102(e), but does not individually address claims 16-18. In particular, the Examiner did not indicate in the *Office Action* that any elements of claims 16-18 were explicitly or implicitly anticipated by any prior art. Therefore, the rejection of claims 16-18 is improper and Applicant requests that claims 16-18 be allowed.

Claims 14, 23-25 and 27 contain elements not addressed by Examiner

Examiner rejected claim 14 based upon “similar rational as independent claim 1,” and indicated that “Wood discloses an interpolation means.” *Office Action*, p. 5. Claim 14 recites “**an interpolation engine configured to receive [...] signals and generate an output ratio signal**” which is not recited in claim 1. In order to properly establish a rejection under 35 USC 102(e), a reference must teach every element of the claimed invention either explicitly or impliedly. Examiner’s statement that *Wood* discloses “an interpolation engine” does not indicate how *Wood* explicitly or impliedly anticipates an interpolation engine configured to “generate an output ratio signal” as recited in claim

14. Therefore, Examiner has failed to make a proper rejection of claim 14 and claim 14 should be allowed.

Examiner rejected claims 23 and 27 based upon “similar rational as independent claim 1.” *Office Action*, p. 5. Independent claims 23 and 27 each recite an element of “calculating a ratio value” which was not recited in claim 1. *Wood* does not explicitly or implicitly disclose “calculating a ratio value.” Because the Examiner did not indicate that *Wood* anticipate the “calculating a ratio value” element of claims 23 and 27, Examiner has failed to make a proper rejection of claims 23 and 27 and the claims should be allowed.

Examiner rejected claims 24-25 based upon “similar rational as above dependent claims 5 and 7.” *Office Action*, p. 5. Dependent claims 24-25 each recite an element of “calculating interpolated [...] values for the point **based upon the ratio value.**” Neither of previously pending dependent claims 5 and 7, or independent claim 1 upon which the both claims depend, recite performing any calculation “based upon the ratio value” or any other reference to a “ratio value” as recited in both claims 24 and 25. Therefore, Examiner has failed to address the “ratio value” element recited in claims 24 and 25. Because Examiner failed to address each and every element of claims 24 and 25, the rejection of these claims is improper claims 24 and 25 should be allowed.

Claim 1 is not anticipated by Wood

Select features of embodiments of Applicant’s invention as described above can be found in claim 1 which recites among other limitations:

determining a first ratio according to a first channel value for the at least two side points and determining one or more remaining channel values for each of the at least two side points based on the first ratio;

determining a second ratio according to a first channel value for the interior point and determining one or more remaining channel values for the interior point according to the second ratio and the corresponding channel values of the side point.

Wood does not disclose the recited elements of claim 1. *Wood* discloses a tile-based rendering system for incrementally interpolating pixels within a graphic image. An image is rendered by sequentially and independently rendering small areas or tiles of the screen. To render a tile, the system determines which triangles impact a tile by overlapping with the tile. (col. 4, lines 41-55) Attributes for each triangle are then interpolated “incrementally” for each triangle in a tile. (col. 5, lines 49-60) In particular, triangle parameters are “incrementally interpolated to an adjacent pixel, from there to another adjacent pixel, and so on until values have been generated for each impacted pixel within the tile.” (col. 6, lines 5-9)

Wood does not disclose “determining a first ratio according to a first channel value for the at least two side points” as recited in claim 1. *Wood* identifies tiles to update, identifies triangles that overlap or are contained in the tile, and interpolates pixels of the tile triangles “incrementally.” There is no explicit or inherent disclosure by *Wood* of “determining a ratio” of any sort, whether the ratio is “according to a first channel value for the at least two side points” or any other ratio. Unlike the embodiment of claim 1, *Wood* discloses a system that incrementally interpolates triangle parameters on a pixel by pixel basis.

Wood also does not disclose “determining a second ratio according to a first channel value for the interior point” as recited in claim 1. *Wood*’s disclosure of a system that interpolates pixels of the tile triangles “incrementally” does not anticipate “determining a [...] ratio” according to a first channel for an interior point, or any other type of ratio for a channel, as claimed in claim 1.

Similarly, because *Wood* does not disclose “determining a ratio,” *Wood* cannot disclose “determining one or more remaining channel values for each of the at least two side points *based on the first ratio*” as in claim 1. The system of *Wood* interpolates neighboring pixels to determine triangle attributes for each pixel; *Wood* does not disclose determining or accessing a ratio. Therefore, *Wood* cannot disclose that channel values are determined for each of two side points based on a “ratio.” Moreover, *Wood* cannot

disclose that “determining one or more remaining channel values for the interior point according to the second ratio.”

Support for “determining a first ratio according to a first channel value for the at least two side points and determining one or more remaining channel values for each of the at least two side points based on the first ratio” as in claim 1 can be found in the specification as filed, a portion of which is cited below, wherein points P1 (PI) and P2 represent the two side points (see Figure 2D):

“The Y coordinate for a particular point PI will be determined by the API or equivalent programming interface. For example, point PI may have a Y coordinate of $PIY = 2$. The channel values of point PI are as follows in this example. Point $PI = (X, Y, U, V) = (PIX, PIY, PIU, PIV)$. A **linear ratio RPIY** may be calculated based on the following: $RPIY = (VIY - PIY) / (VIY - V2Y)$. The X coordinate PIX of point PI is then calculated based on the following: $PIX = RPIY * V2X + (1 - RPIY) * VIX$. The U coordinate PIU of point PI may be calculated based on the following: $PIU = RPIY * V2U + (1 - RPIY) * VIU$. The V coordinate PIV of point PI may be calculated based on the following: $PIV = RPIY * V2V + (1 - RPIY) * Viv$.”

“The channel values of point P2 are as follows in the above example. Point $P2 = (X, Y, U, V) = (P2X, P2Y, P2U, P2V)$. A **linear ratio RP2Y** may be calculated based on the following: $RP2Y = (VIY - P2Y) / (VIY - V3Y)$. The X coordinate $P2X$ of point P2 is then calculated based on the following: $P2X = RP2Y * V3X + (1 - RP2Y) * VIX$. The U coordinate $P2U$ of point P2 may be calculated based on the following: $P2U = RP2Y * V3U + (1 - RP2Y) * VIU$. The V coordinate $P2V$ of point P2 may be calculated based on the following: $P2V = RP2Y * V3V + (1 - RP2Y) * Viv$.” (emphasis added)

Specification as filed, p. 14, lines 7-23.

Support for “determining a second ratio according to a first channel value for the interior point and determining one or more remaining channel values for the interior point according to the second ratio and the corresponding channel values of the side point” as in claim 1 can also be found in the specification as filed, portions of which are cited below, wherein point P represents the interior point (see Figure 2D):

“The channel coordinates of point P is represented as $(X, Y, U, V) = (P_x, P_y, P_u, P_v)$. In the example above, the Y coordinate of point P is $P_y = 2$. The U, V coordinates of point P can be then determined as follows. **A linear ratio R_{px} is determined** based on the following: $R_{px} = (P_{2X} - P_X)/(P_{2X} - P_{1X})$. *The X coordinate P_x of point P is calculated* as follows: $P_x = R_{px} * P_{2X} + (1 - R_{px}) * (P_{1X})$. In the alternative, X coordinate P_x may be provided by the API or equivalent programming interface. *The U, V coordinates P_u, P_v of point P are calculated* as follows: $P_u = R_{px} * P_{1U} + (1 - R_{px}) * (P_{2U})$, and $P_v = R_{px} * P_{1V} + (1 - R_{px}) * (P_{2v})$.”

Specification as filed, p. 14, lines 24 to page. 15, line 6.

Because *Wood* fails to disclose each limitation of claim 1, Applicant asserts that claim 1 is patentable over the cited art and requests that claim 1 be allowed.

Claims 2-18 and 23-29 not addressed by Wood

Claims 2-6 each ultimately depend from allowable claim 1 and should be patentable for at least the same reasons in addition to the distinguishable elements they recite.

Independent claims 8, 9, 13-15, 23 and 27 recite similar “ratio” elements as those recited in claim 1 and not disclosed by *Wood* as discussed above. Therefore, independent claims 8, 9, 13-15, 23 and 27 are not anticipated by *Wood* and should be allowed. Dependent claims 10-12 and 16-22, 24-26 and 28-29 each ultimately depend from one of allowable claims 1, 9, 15, 23 and 27 and should be patentable for at least the same reasons in addition to the distinguishable elements they recite.

CONCLUSION

The Applicants believe that amendments and remarks made herein render the rejections moot. The 35 U.S.C. §112, second paragraph rejection is overcome because the purportedly indefinite claim term "randomly" was removed from claims 1-18 and 23-29 to expedite prosecution. The rejection under 35 U.S.C. §102(e) to claims 1-18 and 23-29 in view of *Wood* is overcome because *Wood* fails to disclose calculating or determining a "ratio" value or signal as recited in each independent claim. Based on the above amendments and remarks, reconsideration of Claims 1-18 and 23-29 is respectfully requested.

The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

Respectfully submitted,

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